REMARKS

I. Introduction

Receipt of the April 15, 2009 final Office Action is acknowledged. In the Action, the claims are rejected allegedly for failing to meet the written description requirement (claims 1, 2, 6-9, 13 and 17), for indefiniteness reasons (claims 1, 2, 6-9, 13 and 17), for being anticipated by Goto *et al.*, Blood, 84:1922 (1994) ("Goto") (claims 1, 2, 7, 13 and 17), obvious over Harlow *et al.*, Antibodies: A Laboratory Manual (1988) CSHL Press, Cold Spring Harbor, NY, pages 555, 560-77, and 591-92 ("Harlow"), in view of Ishikawa *et al.*, Genomics, 26:527 (1995) ("Ishikawa"), Gastinel *et al.*, US Patent No. 5,623,053 ("Gastinel"), and Lauffer *et al.*, US Patent No. 5,639,597 ("Lauffer") (claims 1-2, 6-7, 13 and 17), and obvious over Harlow, in view of Ishikawa, Gastinel, Lauffer, and further in view of Frank *et al.*, US Patent No. 5,646,115 ("Frank") (claims 8-9). Claims 1, 7-8 and 17 are objected to for formality reasons.

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

II. Status of the Claims

In this response, claims 1, 7-9, 13 and 17 are amended. Support for the amended claims can be found throughout the specification. Upon entry of this amendment, claims 1, 2, 6-9, 13 and 17 will be under examination.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

III. Objections to the Specification

The Examiner's objection to the specification indicates that the each sequence identifier should be used to identify a single, unique sequence and not multiple sequences.

Applicants again stress that it is permissible for a sequence listing to include both nucleic acid sequences and amino acid sequences sharing a single SEQ ID NO, as do SEQ ID NOs:1-6 and 16-19. The Examiner's attention is drawn to 37 CFR 1.822(c)(3), which provides:

> The bases in the coding parts of a nucleotide sequence shall be listed as triplets (codons). The amino acids corresponding to the codons in the coding parts of a nucleotide sequence shall be typed immediately below the corresponding codons. Where a codon spans an intron, the amino acid symbol shall be typed below the portion of the codon containing two nucleotides.

As provided in further detail in the chart below, which was first submitted with the Response filed on April 29, 2009, the amino acid sequences are disclosed as separate SEQ ID NOs. The chart outlines the SEQ ID NOs. for the nucleotide sequences of the application, and separate SEQ ID NOs. for the amino acid sequences of the application.

<223> nucleotide sequence	**<223> amino acid sequence**
SEQ ID NO:1	SEQ ID NO:20
SEQ ID NO:2	SEQ ID NO:21
SEQ ID NO:3	SEQ ID NO:22
SEQ ID NO:4	SEQ ID NO:23
SEQ ID NO:5	SEQ ID NO:24
SEQ ID NO:6	SEQ ID NO:25
SEQ ID NO:16	SEQ ID NO:26
SEQ ID NO:17	SEQ ID NO:27
SEQ ID NO:18	SEQ ID NO:28

SEQ ID NO:19	SEQ ID NO:29

As provided above, the nucleic acid and corresponding amino acid sequences are in fact represented by distinct sequence identifiers. SEQ ID NOs: 1-6 and 16-19 do not identify multiple sequences, they identify DNA sequences and their corresponding protein sequences.

Applicants have further amended pages 71-73 of the specification to further clarify the single amino sequences disclosed and the corresponding nucleotide sequences.

Accordingly, applicants respectfully request that the objection to the sequence listing be withdrawn.

The specification is also objected to because a number of trademarks have not been capitalized. The present amendments to the specification address this rejection.

IV. Claim Objections

Claims 1 and 17 are objected to for formality reasons. In the interest of expediting prosecution, and without acquiescing to the Office's rejection, Applicants amended the claims to more clearly recite the presently claimed invention.

Claims 7 and 8 are objected to for allegedly reciting the same phrase twice. Applicants respectfully disagree. Claims 7 and 8 refer to detection of either the HM1.24 antibody, or the soluble HM1.24 antigen. The antibody and the antigen are not equivalent.

Nevertheless, in the interest of expediting prosecution, and without acquiescing to the Office's rejection, Applicants amended the claims to make more clear that the bound antibody-antigen complex can be detected by either an antibody that binds the HM1.24 antibody or the soluble HM1.24 antigen.

Applicants believe that the foregoing amendments address the Office's concerns.

V. Rejection of the Claims Under 35 USC § 112, 1st Paragraph

Claims 1-2, 6-9, 13 and 17 are rejected for failing to meet the written description requirement. In particular, the claims are rejected because the claimed sequence "would encompass not only the protein in which the last 17 amino acid residues [of] SEQ ID NO:20 were removed, but also any protein lacking 17 amino acid residues anywhere in the C-terminus of the protein" (Office Action at 6) and "one skilled in the art cannot envisage which proteins 'having the amino acid sequence modified by lacking 17 amino acid residues from C-terminal in the amino acid sequence shown in SEQ ID NO: 20 would retain the ability to bind antibodies" (Office Action at 10). Applicants respectfully disagree and traverse this ground for rejection.

In the interest of expediting prosecution, and without acquiescing to the Office's rejection, Applicants amended the claims such that the amino acid sequence has been defined by a specific amino acid sequence.

VI. Rejection of the Claims Under 35 USC § 112, 2nd Paragraph

Claims 1-2, 6-9, 13 and 17 are rejected under 35 USC § 112, 2nd paragraph as allegedly indefinite. Specifically, claims 1-2, 7-8 and 17 are rejected because "[t]he term 'soluble' has not been assigned a specific or limiting definition in the instant specification" (Office Action at 11) and "[t]he specification does not make clear whether Applicant intends the term 'soluble' to refer to aqueous solubility, to exclude transmembrane or membrane-associated proteins, or to encompass both of these" (Office Action at 12). Applicants respectfully disagree and traverse this ground for rejection.

Regarding the term "soluble", as can be seen from the descriptions on page 7, lines 21-26; page 54, lines 5 to 14; and page 59, lines 5 to 9, of the English specification, the term "soluble" means that a protein is not attached to the cell surface. Soluble protein can be present in a cell without bonding to a cell membrane. In other words, a soluble protein is a secretory protein. Furthermore, specific examples of a fusion protein using a soluble HM1.24 antigen protein are disclosed in SEQ ID NOs 3 and 4.

Moreover, the deletion of 17 or 14 amino acids from the C-terminal region of HM1.24 antigen make clear that the hydrophobic region of the C-terminal end is deleted and soluble antigen is therefore not trapped on the cell surface. See, e.g., page 59, lines 5 to 9 of the specification.

Taken together, one of skill in the art would understand the meaning of the term "soluble" in the claims in view of the disclosure in the specification and the plain meaning of the term in the context of proteins.

With regard to the rejection outlined in paragraph 22 of the Office Action, Applicants believe that the foregoing amendments address the Office's concerns.

Claims 9 and 12 *[sic]* are rejected because the term "biotin/avidin" is vague and indefinite. In the interest of expediting prosecution and without acquiescing to the Office's rejection, Applicants amended claims 9 and 13 to more clearly recite the presently claimed invention.

VII. Rejection of the Claims Under 35 USC § 102

Claims 1, 2, 7, 13 and 17 are rejected under 35 USC § 102(b) as allegedly anticipated by Goto. Applicants respectfully disagree and traverse this ground for rejection.

Applicants believe that the currently pending claims address the Office's concerns regarding the Goto reference. As the Office may recognize, in the Goto reference, cells were lysed. However, the HM1.24 antigen of Goto is full length and therefore, not a soluble HM1.24 antigen protein. In other words, according to Goto, natively existing HM1.24 protein (i.e., full length HM1.24) is extracted and therefore, Goto does not describe an artificially truncated HM1.24 antigen as presently claimed.

VIII. Rejection of the Claims Under 35 USC § 103

Claims 1-2, 6-7, 13 and 17 are rejected under 35 USC § 103 as allegedly obvious over Harlow, in view of Ishikawa, Gastinel, and Lauffer. Claims 8-9 are also rejected as obvious

over Harlow, in view of Ishikawa, Gastinel, Lauffer, and Frank. Applicants respectfully disagree and traverse these grounds for rejection.

The Ishikawa reference describes an HM1.24 antigen lacking the C-terminal 18 amino acids. However, as can be seen from the description in the Ishikawa reference, on page 530, the left column, line 6, "To prepare a secretory form of BST-2, we constructed pRS38Ig-BOS, which encodes a chimeric protein consisting of the BST-2 molecule, which was deleted of its putative amino-terminal cytoplasmic and transmembrane regions, the secretory signal sequence of BST-1, and the human IgG Fc region." Thus, in Ishikawa, the IgG was attached to the C-terminal and a signal sequence was attached to the N-terminal so as to solubilize the protein. The Ishikawa reference teaches that both the addition of a secretory signal and the addition of IgG Fc are essential for solubilization, and that an entire structure comprising a secretory signal and BST-2 (HM1.24 antigen) and IgG Fc exhibits a secretory property. It should be noted that since the Ishikawa reference does not describe other experiments, it is clear that the IgG Fc was used only for solubilization.

On the other hand, according to the present invention, although a leader sequence and FLAG peptide (SEQ ID NO: 2) or HA peptide (SEQ ID NOs: 3 to 6) is attached to the N-terminal, and GST is attached to C-terminal (Example 20), they are not secretory signal sequences or IgG Fc.

Therefore, on the basis of the Ishikawa reference, a person of ordinary skill in the art would consider that a secretory signal sequence attached to the N-terminal, and IgG Fc attached to the C-terminal are essential for having secretory activity.

On the other hand, the present inventors found, for the first time, that a secretory signal sequence attached to the N-terminal and IgG Fc attached to the C terminal are not necessary for having secretory activity. A person of ordinary skill in the art would not have expected that a secretory signal sequence attached to the N-terminal and IgG Fc attached to the C-terminal, as described in the prior art, are not necessary for having secretory activity. Therefore, the Ishikawa reference does not reasonably predict the presently claimed invention.

In addition, Harlow, Gastinel, and Lauffer do not suggest at all the use of a C-terminal truncation to obtain a secretory type protein.

And with regard to the rejection of claims 8-9, Frank does not address the deficiencies of the other cited references.

Thus, for at least these reasons, Applicants respectfully request the rejection be withdrawn.

CONCLUSION

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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